L Number	Hits	Search Text	DB	Time stamp
1	139	geminivir$10	USPAT; US-PGPUB; EPO; JPO; DERWENT	2001/10/04 15:33
7	38	geminivir$10 and silen$15	USPAT; US-PGPUB; EPO; JPO; DERWENT	2001/10/04 15:34

(FILE 'MEDLINE, AGRICOLA, CANCERLIT, SCISEARCH, CAPLUS, BIOSIS, MEDICONF'
ENTERED AT 15:04:47 ON 04 OCT 2001)
DEL HIS
L1 3934 S GEMINIVIR?
L2 25 S L1 AND SILENC?
L3 12 DUP REM L2 (13 DUPLICATES REMOVED)

FILE 'STNGUIDE' ENTERED AT 15:11:06 ON 04 OCT 2001

FILE 'MEDLINE, AGRICOLA, CANCERLIT, SCISEARCH, CAPLUS, BIOSIS, MEDICONF'
ENTERED AT 15:12:47 ON 04 OCT 2001
L4 1859 S L1 AND (TOMATO OR CASSAVA OR TGMV OR ACMV)
L5 673 S L4 AND (VECTOR? OR CONSTRUCT?)
L6 551 S L5 AND (GEN? OR DNA OR DEOXY? OR RNA OR RIBO?)
L7 42 S L6 AND (SILEN? OR INHIBIT? OR SUPPRESS?)
L8 27 DUP REM L7 (15 DUPLICATES REMOVED)
L9 220717 S HIS
L10 27 SORT L8 PY
L11 6 S L10 AND SILEN?

=> d an ti so au ab pi l11 -16

L11 ANSWER 1 OF 6 AGRICOLA
AN 1998:48820 AGRICOLA
TI **Gene silencing** from plant **DNA** carried by a **geminivirus**.
SO The Plant journal : for cell and molecular biology, Apr 1998. Vol. 14, No. 1. p. 91-100
Publisher: Oxford : Blackwell Sciences Ltd.
ISSN: 0960-7412
AU Kjemtrup, S.; Sampson, K.S.; Peele, C.G.; Nguyen, L.V.; Conkling, M.A.; Thompson, W.F.; Robertson, D.
AB The **geminivirus tomato** golden mosaic virus (**TGMV**) replicates in nuclei and expresses **genes** from high copy number **DNA** episomes. The authors used **TGMV** as a **vector** to determine whether episomal **DNA** can cause **silencing** of homologous, chromosomal **genes**. Two markers were used to assess **silencing**: (1) the sulfur allele (su) of magnesium chelatase, an enzyme required for chlorophyll formation; and (2) the firefly luciferase **gene** (luc). Various portions of both marker **genes** were inserted into **TGMV** in place of the coat protein open-reading frame and the **constructs** were introduced into intact plants using particle bombardment. When **TGMV vectors** carrying fragments of su (**TGMV** ::su) were introduced into leaves of wild-type Nicotiana benthamiana, circular, yellow spots with an area of several hundred cells formed after 3-5 days. Systemic movement of **TGMV**::su subsequently produced variegated leaf and stem tissue. Fragments that caused **silencing** included a 786 bp 5' fragment of the 1392 bp su cDNA in sense and anti-sense orientation, and a 403 bp 3' fragment. **TGMV** ::su-induced **silencing** was propagated through tissue culture, along with the viral episome, but was not retained through meiosis. Systemic downregulation of a constitutively expressed luciferase transgene in plants was achieved following infection with **TGMV** **vectors** carrying a 623 bp portion of luc in sense or anti-sense orientation. These results establish that homologous **DNA** sequences localized in nuclear episomes can modulate the expression of active chromosomal **genes**.

L11 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2001 ACS
AN 2001:78519 CAPLUS
DN 134:142713
TI Use of sense and antisense expression of **DNA** sequences in plants to identify their coding function
SO PCT Int. Appl., 103 pp.
CODEN: PIXXD2

IN Kumagai, Monto H.; Della-Cioppa, Guy R.; Erwin, Robert L.; McGee, David R.

AB The present invention relates to a method for correlating the function of a host organism derived nucleic acid sequence by a transient expression of the nucleic acid sequence in an antisense or pos. sense orientation in a plant host. The method may be used with **genomic** or cDNA libraries and can be extended to non-plant sources, such as human, if there is enough sequence similarity. **DNA** sequence similarity searching can be used to indicate the function of the **gene** and in the design of expts. Use of the method to clone a no. of **genes** for enzymes and proteins of known function from plants is demonstrated. A variety of plant viruses are shown to be useful as **vectors**.

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2001007600	A1	20010201	WO 2000-US20261	20000721

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

L11 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2001 ACS

AN 2000:210387 CAPLUS

DN 132:247158

TI Binary viral expression system for plants using site-specific recombination to regulate the formation of a replication-competent episome

SO PCT Int. Appl., 82 pp.
CODEN: PIXXD2

IN Yadav, Narendra S.

AB This invention provides a regulated binary plant viral expression system comprised of two chromosomally-integrated components. One component is an incomplete replicon (a pro-replicon), that contains cis-acting viral sequences required for replication and a target **gene**. The pro-replicon lacks a **gene** essential for its function, and thus cannot undergo autonomous episomal replication. The other component is a chimeric trans-acting replication **gene** under control of a regulated promoter. Expression of the trans-acting replication protein in plant cells contg. the pro-replicon will trigger the release of free replicon from the integrated pro-replicon, resulting in its episomal replication in trans and the expression of the target **gene**, if present, through **gene** amplification. The expression system is useful for both prodn. of foreign proteins as well as **silencing** endogenous **genes** and transgenes in plant tissue. Tissue-specific expression is controlled by the choice of promoter controlling the transcription of the trans-acting replication **gene**.

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2000017365	A2	20000330	WO 1999-US21989	19990922
WO 2000017365	A3	20000824		

W: AU, BR, CA, HU, IL, JP, KR, MX, NZ, PL, US

RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

EP 1115870	A2	20010718	EP 1999-969445	19990922

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI

L11 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2001 ACS

AN 1999:753362 CAPLUS

DN 132:9623

TI **Geminivirus** inducible promoter sequences and the uses thereof to control **geminivirus** infection in plants

SO PCT Int. Appl., 64 pp.

CODEN: PIXXD2

IN Rivera-Bustamante, Rafael F.; Ruiz-Medrano, Roberto; Arguello-Astorga, Gerardo; Monsalve-Fonnegra, Zulma I.

AB Novel chimeric promoters which allow controlled transcription and/or expression of a nucleic acid sequence upon **geminivirus** infection, and the use of such recombinant promoters are provided. Furthermore, recombinant **genes** comprising such promoters, and transgenic plant cells, and plants comprising the chimeric promoters or recombinant **genes** are described. It appears that upon infection of the plant with wild-type virus, or a part thereof such as the AC2 protein, expression of adjacent **genes** occurs under the control and influence of a **geminiviral** promoter. Small nucleotide sequences, referred to as CLEs (conserved late elements), present in the **geminiviral** promoter, are sufficient to induce said expression. According to the current invention it is thus feasible to **construct** transgenic plants, comprising at least one of said CLEs or functional fragments thereof, which are resistant to **geminiviral** infection. To obtain this effect, adjacent to or operably linked to any of the said CLEs any **gene** or **gene** combination can be **constructed**, which **gene** or **gene** product is able to interfere with the outbreak or growth characteristics of the **geminivirus** in order to arrest further spread of the **geminivirus** in the infected plant or part thereof.

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 9960140	A2	19991125	WO 1999-IB1282	19990519
WO 9960140	A3	20000615		
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
EP 960940	A1	19991201	EP 1998-201636	19980519
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
AU 9945286	A1	19991206	AU 1999-45286	19990519

L11 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2001 ACS

AN 1999:641000 CAPLUS

DN 131:253367

TI **Suppression** of **gene** expression in plants using **geminivirus vectors**

SO PCT Int. Appl., 42 pp.
CODEN: PIXXD2

IN Robertson, Dominique

AB The introduction of **DNA** episomes into plant cells to reduce or prevent the expression of endogenous nuclear or chromosomal **genes** is described. **Geminivirus vectors** (e.g., **tomato** golden mosaic virus, **TGMV**) to provide systemic **silencing** of an endogenous plant **gene** in a treated plant are described. Two markers were used to assess **silencing**: (1) the sulfur allele (su) of magnesium chelatase, and enzyme require for chlorophyll formation; and (2) the firefly luciferase **gene** (luc). Various portions of both marker **genes** were inserted into **TGMV** in place of the coat protein open reading frame and the **constructs** introduced in leaves of wild-type Nicotiana benthamiana using particle bombardment. Fragments that caused **silencing** included a 786-bp 5'-fragment of the 1392-bp su cDNA in sense and antisense orientation, and a 403-bp 3'-fragment of su cDNA. **TGMV** ::su-induced **silencing** was propagated through tissue culture, along with the viral episome, but was not retained through meiosis. Systemic down-regulation of a constitutively expressed luciferase

transgene in plants was achieved following infection with **TGMV vectors** carrying a 62-bp portion of luc in sense or antisense orientation. Thus, a nuclear-localized **DNA** virus (such as the **TGMV geminivirus**) carrying sequences complementary to (or having substantial sequence similarity to) chromosomal **genes** can **silence** the chromosomal **gene**.

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9950429	A1	19991007	WO 1999-US6082	19990319
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	AU 9931048	A1	19991018	AU 1999-31048	19990319
	EP 1068340	A1	20010117	EP 1999-912737	19990319
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				

L11 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2001 ACS
AN 1999:299523 CAPLUS
DN 130:321579
TI Binary viral expression system for use in plants
SO PCT Int. Appl., 46 pp.
CODEN: PIXXD2
IN Yadav, Narendra S.
AB This invention provides a regulated binary plant viral expression system comprised of two chromosomally-integrated components. One component is a pro-replicon, which contains cis-acting viral sequences (required for replication) and a target **gene**. The pro-replicon lacks the replication **gene** essential for replicon replication, and thus cannot undergo autonomous episomal replication. The other component is a chimeric trans-acting replication **gene** comprising a regulated promoter operably-linked to the coding region for a viral replication protein. Regulated expression of the trans-acting replication protein in plant cells also contg. the pro-replicon will trigger the release of free replicon from the integrated pro-replicon, resulting in its episomal replication in trans and the expression of the target **gene**, if present, through **gene** amplification. The expression system is useful for both prodn. of foreign proteins as well as **silencing** endogenous **genes** and transgenes in plant tissue.
Tissue-specific expression is controlled by the choice of promoter controlling the transcription of the trans-acting replication **gene**
.

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9922003	A1	19990506	WO 1998-US22688	19981023
	W: AU, BR, CA, HU, IL, JP, KR, MX, NZ, PL, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	AU 9911225	A1	19990517	AU 1999-11225	19981023
	AU 731330	B2	20010329		
	US 6077992	A	20000620	US 1998-178089	19981023
	EP 1025234	A1	20000809	EP 1998-953997	19981023
	R: DE, ES, FR, GB, IT, SE				
	BR 9815260	A	20001121	BR 1998-15260	19981023

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(FILE 'MEDLINE, AGRICOLA, CANCERLIT, SCISEARCH, CAPLUS, BIOSIS, MEDICONF'
ENTERED AT 15:04:47 ON 04 OCT 2001)
DEL HIS
L1 3934 S GEMINIVIR?
L2 25 S L1 AND SILENC?
L3 12 DUP REM L2 (13 DUPLICATES REMOVED)

=> d an ti so au ab pi l3 2 5 6 7 10 12

L3 ANSWER 2 OF 12 MEDLINE DUPLICATE 1
AN 2001491261 IN-PROCESS
TI **Silencing** of a meristematic gene using **geminivirus** -derived vectors.
SO PLANT JOURNAL, (2001 Aug) 27 (4) 357-66.
Journal code: BRU; 9207397. ISSN: 0960-7412.
AU Peele C; Jordan C V; Muangsan N; Turnage M; Egelkrout E; Eagle P; Hanley-Bowdoin L; Robertson D
AB **Geminiviruses** are DNA viruses that replicate and transcribe their genes in plant nuclei. They are ideal vectors for understanding plant gene function because of their ability to cause systemic **silencing** in new growth and ease of inoculation. We previously demonstrated DNA episome-mediated gene **silencing** from a bipartite **geminivirus** in Nicotiana benthamiana. Using an improved vector, we now show that extensive **silencing** of endogenous genes can be obtained using less than 100 bp of homologous sequence. Concomitant symptom development varied depending upon the target gene and insert size, with larger inserts producing milder symptoms. In situ hybridization of **silenced** tissue in attenuated infections demonstrated that **silencing** occurs in cells that lack detectable levels of viral DNA. A mutation confining the virus to vascular tissue produced extensive **silencing** in mesophyll tissue, further demonstrating that endogenous gene **silencing** can be separated from viral infection. We also show that two essential genes encoding a subunit of magnesium chelatase and proliferating cell nuclear antigen (PCNA) can be **silenced** simultaneously from different components of the same viral vector. Immunolocalization of **silenced** tissue showed that the PCNA protein was down-regulated throughout meristematic tissues. Our results demonstrate that **geminivirus**-derived vectors can be used to study genes involved in meristem function in intact plants.

L3 ANSWER 5 OF 12 MEDLINE DUPLICATE 2
AN 2000446841 MEDLINE
TI Plant DNA viruses and gene **silencing**.
SO PLANT MOLECULAR BIOLOGY, (2000 Jun) 43 (2-3) 307-22. Ref: 71
Journal code: A6O; 9106343. ISSN: 0167-4412.
AU Covey S N; Al-Kaff N S
AB Gene **silencing** is a multifaceted phenomenon leading to propagative down-regulation of gene expression. Gene **silencing**, first observed in plants containing transgenes, can operate both at the transcriptional and post-transcriptional levels. **Silencing** effects can be triggered by nuclear transgenes and by cytoplasmic RNA viruses, and it can be propagated between these elements and endogenous plant genes that share sequence homology. Although some aspects of gene **silencing** are becoming better understood, little is yet known about the relationship between nuclear and cytoplasmic events. Plant DNA viruses-- both the ssDNA **geminiviruses** and the reverse-transcribing pararetroviruses-- have properties with the potential to initiate gene **silencing** in the nucleus and in the cytoplasm. Characteristics include production of multiple copies of viral DNA genomes in the nucleus, illegitimate integration of viral DNA into host chromosomes mimicking transgene transformation, and generation of abundant viral RNAs in the cytoplasm. Evidence is emerging that **geminiviruses** and plant pararetroviruses can interact with the gene **silencing** system either from introduced DNA constructs or during viral pathogenesis. Some observations suggest there are complex

relationships between DNA viral activity, transcriptional and post-transcriptional gene **silencing** mechanisms. DNA viruses also have properties consistent with an ability to counteract the plant **silencing** response. In this article, features of plant DNA viruses are discussed in relation to gene **silencing** phenomena, and the prospects for understanding the interaction between nuclear and cytoplasmic **silencing** processes.

L3 ANSWER 6 OF 12 CAPLUS COPYRIGHT 2001 ACS
AN 1999:753362 CAPLUS
DN 132:9623
TI **Geminivirus** inducible promoter sequences and the uses thereof to control **geminivirus** infection in plants
SO PCT Int. Appl., 64 pp.
CODEN: PIXXD2
IN Rivera-Bustamante, Rafael F.; Ruiz-Medrano, Roberto; Arguello-Astorga, Gerardo; Monsalve-Fonnegra, Zulma I.
AB Novel chimeric promoters which allow controlled transcription and/or expression of a nucleic acid sequence upon **geminivirus** infection, and the use of such recombinant promoters are provided. Furthermore, recombinant genes comprising such promoters, and transgenic plant cells, and plants comprising the chimeric promoters or recombinant genes are described. It appears that upon infection of the plant with wild-type virus, or a part thereof such as the AC2 protein, expression of adjacent genes occurs under the control and influence of a **geminiviral** promoter. Small nucleotide sequences, referred to as CLEs (conserved late elements), present in the **geminiviral** promoter, are sufficient to induce said expression. According to the current invention it is thus feasible to construct transgenic plants, comprising at least one of said CLEs or functional fragments thereof, which are resistant to **geminiviral** infection. To obtain this effect, adjacent to or operably linked to any of the said CLEs any gene or gene combination can be constructed, which gene or gene product is able to interfere with the outbreak or growth characteristics of the **geminivirus** in order to arrest further spread of the **geminivirus** in the infected plant or part thereof.

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 9960140	A2	19991125	WO 1999-IB1282	19990519
WO 9960140	A3	20000615		
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
EP 960940	A1	19991201	EP 1998-201636	19980519
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
AU 9945286	A1	19991206	AU 1999-45286	19990519

L3 ANSWER 7 OF 12 CAPLUS COPYRIGHT 2001 ACS
AN 1999:641000 CAPLUS
DN 131:253367
TI Suppression of gene expression in plants using **geminivirus** vectors
SO PCT Int. Appl., 42 pp.
CODEN: PIXXD2
IN Robertson, Dominique
AB The introduction of DNA episomes into plant cells to reduce or prevent the expression of endogenous nuclear or chromosomal genes is described. **Geminivirus** vectors (e.g., tomato golden mosaic virus, TGMV) to provide systemic **silencing** of an endogenous plant gene in a

treated plant are described. Two markers were used to assess **silencing**: (1) the sulfur allele (su) of magnesium chelatase, and enzyme require for chlorophyll formation; and (2) the firefly luciferase gene (luc). Various portions of both marker genes were inserted into TGMV in place of the coat protein open reading frame and the constructs introduced in leaves of wild-type Nicotiana benthamiana using particle bombardment. Fragments that caused **silencing** included a 786-bp 5'-fragment of the 1392-bp su cDNA in sense and antisense orientation, and a 403-bp 3'-fragment of su cDNA. TGMV::su-induced **silencing** was propagated through tissue culture, along with the viral episome, but was not retained through meiosis. Systemic down-regulation of a constitutively expressed luciferase transgene in plants was achieved following infection with TGMV vectors carrying a 62-bp portion of luc in sense or antisense orientation. Thus, a nuclear-localized DNA virus (such as the TGMV **geminivirus**) carrying sequences complementary to (or having substantial sequence similarity to) chromosomal genes can **silence** the chromosomal gene.

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 9950429	A1	19991007	WO 1999-US6082	19990319
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9931048	A1	19991018	AU 1999-31048	19990319
EP 1068340	A1	20010117	EP 1999-912737	19990319
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				

L3 ANSWER 10 OF 12 MEDLINE DUPLICATE 3
AN 2000040691 MEDLINE
TI Suppression of gene **silencing**: a general strategy used by diverse DNA and RNA viruses of plants.
SO PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, (1999 Nov 23) 96 (24) 14147-52.
Journal code: PV3; 7505876. ISSN: 0027-8424.
AU Voinnet O; Pinto Y M; Baulcombe D C
AB In transgenic and nontransgenic plants, viruses are both initiators and targets of a defense mechanism that is similar to posttranscriptional gene **silencing** (PTGS). Recently, it was found that potyviruses and cucumoviruses encode pathogenicity determinants that suppress this defense mechanism. Here, we test diverse virus types for the ability to suppress PTGS. Nicotiana benthamiana exhibiting PTGS of a green fluorescent protein transgene were infected with a range of unrelated viruses and various potato virus X vectors producing viral pathogenicity factors. Upon infection, suppression of PTGS was assessed in planta through reactivation of green fluorescence and confirmed by molecular analysis. These experiments led to the identification of three suppressors of PTGS and showed that suppression of PTGS is widely used as a counter-defense strategy by DNA and RNA viruses. However, the spatial pattern and degree of suppression varied extensively between viruses. At one extreme, there are viruses that suppress in all tissues of all infected leaves, whereas others are able to suppress only in the veins of new emerging leaves. This variation existed even between closely related members of the potexvirus group. Collectively, these results suggest that virus-encoded suppressors of gene **silencing** have distinct modes of action, are targeted against distinct components of the host gene-**silencing** machinery, and that there is dynamic evolution of the host and viral components associated with the gene-**silencing** mechanism.

L3 ANSWER 12 OF 12 AGRICOLA DUPLICATE 5
AN 1998:48820 AGRICOLA

TI Gene **silencing** from plant DNA carried by a **geminivirus**

SO The Plant journal : for cell and molecular biology, Apr 1998. Vol. 14, No. 1. p. 91-100
Publisher: Oxford : Blackwell Sciences Ltd.
ISSN: 0960-7412

AU Kjemtrup, S.; Sampson, K.S.; Peele, C.G.; Nguyen, L.V.; Conkling, M.A.; Thompson, W.F.; Robertson, D.

AB The **geminivirus** tomato golden mosaic virus (TGMV) replicates in nuclei and expresses genes from high copy number DNA episomes. The authors used TGMV as a vector to determine whether episomal DNA can cause **silencing** of homologous, chromosomal genes. Two markers were used to assess **silencing**: (1) the sulfur allele (su) of magnesium chelatase, an enzyme required for chlorophyll formation; and (2) the firefly luciferase gene (luc). Various portions of both marker genes were inserted into TGMV in place of the coat protein open-reading frame and the constructs were introduced into intact plants using particle bombardment. When TGMV vectors carrying fragments of su (TGMV::su) were introduced into leaves of wild-type Nicotiana benthamiana, circular, yellow spots with an area of several hundred cells formed after 3-5 days. Systemic movement of TGMV::su subsequently produced variegated leaf and stem tissue. Fragments that caused **silencing** included a 786 bp 5' fragment of the 1392 bp su cDNA in sense and anti-sense orientation, and a 403 bp 3' fragment. TGMV::su-induced **silencing** was propagated through tissue culture, along with the viral episome, but was not retained through meiosis. Systemic downregulation of a constitutively expressed luciferase transgene in plants was achieved following infection with TGMV vectors carrying a 623 bp portion of luc in sense or anti-sense orientation. These results establish that homologous DNA sequences localized in nuclear episomes can modulate the expression of active chromosomal genes.

(19) Europäisch s Patentamt
European Patent Office
Office européen des brevets

(11) Veröffentlichungsnummer:
(11) Publication number:
(11) Numéro de publication:

1 068 340

Internationale Anmeldung veröffentlicht durch die Weltorganisation für geistiges Eigentum unter der Nummer:

WO 99/50429 (art.158 des EPÜ).

International application published by the World Intellectual Property Organisation under number:

WO 99/50429 (art.158 of the EPC).

Demande internationale publiée par l'Organisation Mondiale de la Propriété sous le numéro:

WO 99/50429 (art.158 de la CBE).